EML

Environmental Chamber

The EML Environmental Chamber is a user facility with unique capabilities for generating controlled atmospheres with aerosols and radioactive gases. It is capable of maintaining a great range of a combination of environmental, aerosol and radioactive aerosol parameters, and is ideally suited for the creation of a wide variety of regimes for sophisticated experiments and instrumental calibration and testing. The chamber interior volume of 25 m3 allows several people with large pieces of equipment to work simultaneously. Chamber temperature, relative humidity, aerosol and radioactive aerosol concentration can be recorded automatically; the calibration of the radon monitoring instruments is traceable to a NIST standard.

- ***Radon, Thoron Concentration***
  - up to 5,000 Bq/m³
- ***Aerosol Parameters***
  - Background particle concentration of < 1/cm³
  - Two monodisperse Aerosol Generators (TSI 3472 and TSI 3470)
  - Particle diameter between 70 nm and 11,000 nm at particle concentrations between 10,000 and 50,000/cm³
  - Aerosol characterization using TSI Electrostatic Classifier (TSI 3071A)
  - Aerosol loss rate: < 0.14/hour
- ***Chamber Characteristics:***
  - 25 m³ usable volume; chamber lined with stainless steel; organic vapors minimized
  - Air leakage rate: 26-39 L/min
- ***Environmental Parameters:***
  - Temperature set points between 5°C and 40°C (± 1 °C)
  - Relative humidity set point: 5% to 100% RH (± 2% RH)

- ***Some recent uses of the chamber have been:***
  - Intercomparison of active and passive radon and radon progeny instrumentation
  - Development and testing of a new radon and radon progeny instrumentation
  - Testing of equipment for use in the characterization of uranium mine atmospheres (ambient temperature, 5°C, 100% RH)
  - Testing of equipment for detection of radioactive xenon with applications in nuclear nonproliferation

Environmental Measurements Laboratory, 201 Varick Street, 5th floor, New York, New York 10014-4811, U. S. A.
Contact: Al Cavallo Voice: 212-620-3396 E-mail: acavallo@eml.doe.gov